

What is claimed is:

1. A switched coupler type digital phase shifter, comprising:

5 a coupling means for receiving one input signal and generating a first signal and a second signal having 180 degree phase difference based on the received input signal;

 a quadrature signal generation means for generating a third signal to a sixth signal having 90 degree phase
10 difference to each other based on the first signal and the second signal outputted from the coupling means; and

 a switching means for selectively outputting one of the third signal to the sixth signal outputted from the quadrature signal generation means in response to a control
15 signal.

2. The switched coupler type digital phase shifter as recited in claim 1, wherein the coupling means includes an active balanced-to-unbalanced (balun).

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3. The switched coupler type digital phase shifter as recited in claim 1, wherein the coupling means includes a passive balanced-to-unbalanced (balun).

25 4. The switched coupler type digital phase shifter as recited in claim 1, wherein the switching means includes a SP4T switch implemented by using a circuit of transistor

and diode or a micro electron mechanical (MEM) device.

5 5. The switched coupler type digital phase shifter as
recited in claim 1, wherein the quadrature signal generation
means includes a poly-phase filter.

6. A multi-bit digital phase shifter, comprising:
a controller for generating control signals
a digital phase shifter for receiving an input signal
10 and the control signals from the controller and generating
a first phase shifted signal having 45 degree phase
difference comparing to the input signal base on the
control signals; and

a switched coupler type digital phase shifter for
15 receiving the first phase shifted signals from a digital
phase shifter and the control signal from the controller
and generating a second phase shifted signal having 90
degree phase difference comparing to the first phase
shifted signal,

20 wherein the switched coupler type digital
phase shifter includes:

a coupling means for receiving the first
phase shifted signal and generating a first signal
and a second signal having 180 degree phase
25 difference based on the received input signal;

a quadrature signal generation means for
generating a third signal to a sixth signal having

90 degree phase difference to each other based on the first signal and the second signal outputted from the coupling means; and

5 a switching means for selectively outputting one of the third signal to the sixth signal outputted from the quadrature signal generation means as the second phase shifted signal in response to a control signals.

10 7. A multi-bit digital phase shifter, comprising:

a controller for generating a control signals;

a switched coupler type digital phase shifter for receiving an input signal and the control signal from the controller and generating a first phase shifted signal
15 based on the control signals,

wherein the switched coupler type digital phase shifter includes:

a coupling means for receiving the input signal and generating a first signal and a second
20 signal having 180 degree phase difference based on the received input signal;

a quadrature signal generation means for generating a third signal to a sixth signal having 90 degree phase difference to each other based on
25 the first signal and the second signal outputted from the coupling means; and

a switching means for selectively outputting

one of the third signal to the sixth signal
outputted from the quadrate signal generation means
as the first phase shifted signal in response to a
control signals; and

5 a digital phase shifter for receiving the first phase
shifted signal from the switched coupler type digital phase
shifter and the control signals from the controller and
generating a second phase shifted signal having 45 degree
phase difference comparing to the first phase shifted
10 signal base on the control signals.